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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/599,790

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Gerardus Johannes Josephus Vos

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

FINDLEY, CHRISTOPHER G

ART UNIT

PAPER NUMBER

2482

NOTIFICATION DATE

DELIVERY MODE

04/13/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/599,790	Applicant(s) VOS ET AL.	
	Examiner CHRISTOPHER FINDLEY	Art Unit 2482	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 6, and 9 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Street (US 5936774 A) in view of Wohlstadter (US 6014259 A), and further in view of Jessop (US 6924792 B1).

Re **claim 1**, Street discloses a display device, comprising an imaging layer with a plurality of picture elements (Street: column 9, lines 13-15, light source) and a lens layer comprising a plurality of lens elements for projecting light from different picture elements in the imaging layer to the left and right eyes of a user (Street: column 9, lines 19-23, lenticular screen; column 9, lines 33-40, light projected toward left or right eye) in order to provide an autostereoscopic effect (Street: column 1, lines 9-13), the display device comprises a tracking device for determining the position of a users head (Street: column 9, lines 40-44).

Street does not specifically disclose that each lens element comprises at least one lens cell which defines a closed space, having a front wall, facing the user, a back wall facing the imaging layer and side walls connecting the back and front walls, the closed space being filled with first and second immiscible fluids having different refractive indices, wherein the side walls of each lens cell comprise at least a first and a second individually controllable electrode, and controlling means for controlling potentials of the electrodes based on a target position. However, Wohlstadter discloses a three dimensional imaging system, wherein a two dimensional image is overlayed with an array of microlenses to generate light

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cones of varying divergence and simulate 3D space (Wohlstadter: column 5, lines 35-39). Wohlstadter further discloses that a known technique for providing focal length variation and control includes placing microelectrodes within liquid lenses and varying the potential in order to change the curvature of the generated lens (Wohlstadter: column 3, lines 53-58). Furthermore, Wohlstadter explains that one method of implementing such a liquid lens utilizes hydrophobic liquid micro-lenses formed on a surface and covered with an aqueous solution, wherein the surface potential is varied versus the aqueous solution (Wohlstadter: column 3, lines 58-61). Such microlenses are capable of rapidly varying the focus of the lens (Wohlstadter: column 3, lines 61-64), wherein the rapid focusing is required to implement the 3D display of the corresponding pixels (Wohlstadter: column 7, line 63-column 8, line 10). Since both Street and Wohlstadter relate to generating 3D displays, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the rapid focusing of Wohlstadter with the autostereoscopic display of Street in order to implement a system capable of focusing the light corresponding to the pixels into the proper location for stereoscopic viewing regardless of the position of the viewer.

Neither Street nor Wohlstadter explicitly discloses each cell comprising means for varying the convexity and/or tilt of the interface between the first and second fluids. However, Jessop discloses an electrowetting and electrostatic screen display system, wherein the shape of a droplet, which is located on a hydrophobic polymer surface incorporating different wettability levels, is modified (and thus its optical properties are changed) by the application of electrical potential to one or more adjacent electrodes electrically insulated from the droplet (Jessop: Figs. 9(a)-9(c) and column 2, lines 24-30). Since Wohlstadter and Jessop both relate to liquid lenses that are deformed by the application of electrical current, so as to dynamically redirect light, one of ordinary skill in the art at the time of the invention would have found it obvious to include the controllably directed lenses of Wohlstadter and Jessop with the stereoscopic display of Street in order to provide a system that can provide stereoscopic viewing while compensating for various viewer positions.

Re **claim 2**, Street discloses that each lens element is elongated and covers a linear segment of the imaging layer from top to bottom (Street: column 9, lines 19-23 and 27-30).

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Re **claim 3**, Street does not explicitly disclose that each lens element comprises a single lens cell. However, Wohlstadter discloses that each pixel has with it an associated lens or compound lens (Wohlstadter: column 8, lines 5-8). Since both Street and Wohlstadter relate to generating 3D displays, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the rapid focusing of Wohlstadter with the autostereoscopic display of Street in order to implement a system capable of focusing the light corresponding to the pixels into the proper location for stereoscopic viewing regardless of the position of the viewer.

Re **claim 4**, Street does not explicitly disclose that each lens element comprises a plurality of lens cells. However, Wohlstadter discloses that each pixel has with it an associated lens or compound lens (Wohlstadter: column 8, lines 5-8). Since both Street and Wohlstadter relate to generating 3D displays, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the rapid focusing of Wohlstadter with the autostereoscopic display of Street in order to implement a system capable of focusing the light corresponding to the pixels into the proper location for stereoscopic viewing regardless of the position of the viewer.

Re **claim 5**, Street does not explicitly disclose that said lens cells are individually controllable. However, Wohlstadter discloses that the rays from each pixel can be controlled to reach the eye at a predetermined angle (Wohlstadter: column 8, lines 5-8). Since both Street and Wohlstadter relate to generating 3D displays, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the rapid focusing of Wohlstadter with the autostereoscopic display of Street in order to implement a system capable of focusing the light corresponding to the pixels into the proper location for stereoscopic viewing regardless of the position of the viewer.

Re **claim 6**, Street does not explicitly disclose selecting means for switching the display device into a 2D-mode such that the controlling means for controlling potentials of said first and second electrode the interface between the first and second fluids to be substantially flat. However, Wohlstadter explains that one method of implementing a liquid lens utilizes hydrophobic liquid micro-lenses formed on a surface and covered with an aqueous solution, wherein the surface potential is varied versus the aqueous solution (Wohlstadter: column 3, lines 58-61). Since both Street and Wohlstadter relate to generating 3D

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displays, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the rapid focusing of Wohlstadter with the autostereoscopic display of Street in order to implement a system capable of focusing the light corresponding to the pixels into the proper location for stereoscopic viewing regardless of the position of the viewer.

Re **claim 7**, Street does not explicitly disclose that the first fluid is an electrically conducting fluid, and wherein the second fluid is an electrically non conducting fluid, and wherein the inner front and side walls are covered with an hydrophobic layer. However, Wohlstadter explains that one method of implementing a liquid lens utilizes hydrophobic liquid micro-lenses formed on a surface and covered with an aqueous solution, wherein the surface potential is varied versus the aqueous solution (Wohlstadter: column 3, lines 58-61). Since both Street and Wohlstadter relate to generating 3D displays, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the rapid focusing of Wohlstadter with the autostereoscopic display of Street in order to implement a system capable of focusing the light corresponding to the pixels into the proper location for stereoscopic viewing regardless of the position of the viewer.

Re **claim 8**, Street does not explicitly disclose that the tracking device comprises a video camera. However, Street discloses that the tracking system senses the position of the observer and controls the screen to ensure that viewing zones for the left and right eye images are correctly positioned (Street: column 9, lines 40-44). Since detecting the positions of the eyes and directing the light beams accordingly requires a greater degree of precision than merely directing the light to the head position, one of ordinary skill in the art at the time of the invention would have found it obvious that a camera would be used to distinguish the exact position of the eyes in order to direct the light to the correct eye so that the observed video would have a stereoscopic effect.

Claim 9 recites the corresponding method for implementation by the device of claim 1, and therefore claim 9 has been analyzed and rejected with respect to claim 1.

Re **claim 10**, neither Street nor Wohlstadter specifically discloses that the first fluid is an aqueous salt solution. However, Jessop discloses the use of droplets excited by electrostatic fields or charges, wherein any suitable transparent or translucent liquid may be used (Jessop: column 3, lines 26-38).

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Since aqueous salt solution is well known to have electrically conductive properties and be transparent or translucent, one of ordinary skill in the art at the time of the invention would have found it obvious to use aqueous salt solution so as to provide a low cost and abundant option for use as a liquid lense. Since Wohlstadter and Jessop both relate to liquid lenses that are deformed by the application of electrical current, so as to dynamically redirect light, one of ordinary skill in the art at the time of the invention would have found it obvious to include the controllably directed lenses of Wohlstadter and Jessop with the stereoscopic display of Street in order to provide a system that can provide stereoscopic viewing while compensating for various viewer positions.

Re **claim 11**, neither Street nor Wohlstadter specifically discloses that the second fluid is an oil. However, Jessop discloses the use of oil droplets excited by electrostatic fields or charges (Jessop: column 3, lines 26-38). Since Wohlstadter and Jessop both relate to liquid lenses that are deformed by the application of electrical current, so as to dynamically redirect light, one of ordinary skill in the art at the time of the invention would have found it obvious to include the controllably directed lenses of Wohlstadter and Jessop with the stereoscopic display of Street in order to provide a system that can provide stereoscopic viewing while compensating for various viewer positions.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
 - a. Dynamic scalable full-parallax three-dimensional electronic display; Holzbach (US 6795241 B1)
 - b. Autostereoscopic display with rotated microlens and method of displaying multidimensional images, especially color images; Brown et al. (US 20030016444 A1)
5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date

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of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER FINDLEY whose telephone number is 571-270-1199. The examiner can normally be reached on Monday-Friday (8:30 AM-5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on 571-272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2424

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